



RESEARCH, DEVELOPMENT and TECHNOLOGY TRANSFER QUARTERLY PROGRESS REPORT (QPR)

Wisconsin Department of Transportation (WisDOT)
DT1241 5/2014

INSTRUCTIONS:

Research principal investigators and/or project managers should complete a quarterly progress report (QPR) for each calendar quarter during which the projects are active.

WisDOT Research Program Category <input type="checkbox"/> Policy Research <input checked="" type="checkbox"/> Wisconsin Highway Research Program <input type="checkbox"/> Other: _____		Report Period (enter year and check which quarter) Year: <u>2014</u> <input type="checkbox"/> Quarter 1 (Jan 1 – Mar 31) <input type="checkbox"/> Quarter 3 (Jul 1 – Sep 30) <input type="checkbox"/> Quarter 2 (Apr 1 – Jun 30) <input checked="" type="checkbox"/> Quarter 4 (Oct 1 – Dec 31)	
Project Title <u>Understanding and Complying with Storm Water Mitigation Guidelines from the EPA</u>		WisDOT Project ID <u>0092-13-03</u>	
Principal Investigator Name <u>Qian Liao</u>	Project Oversight Committee Chair Name <u>Jeff Horsfall</u>	Project Start Date (m/d/yyyy) <u>8/14/2012</u>	
(Area Code) Telephone Number <u>414-229-4228</u>	(Area Code) Telephone Number <u>608-243-5993</u>	Original End Date (m/d/yyyy) <u>2/13/2014</u>	
Email Address <u>liao@uwm.edu</u>	Email Address <u>Jeffrey.Horsfall@dot.wi.gov</u>	Current End Date (m/d/yyyy) <u>12/13/2015</u>	

Project Schedule Status (check one)

☐ On Schedule ☒ On Revised Schedule ☐ Ahead of Schedule ☐ Behind Schedule

Project Budget Status

Total Project Budget	Expenditures Current Quarter	Total Expenditures	% Funds Expended	% Work Completed
\$74,998.00	\$5,200.00	\$56,304.00	75%	80%

Project Description

The overall objective of the proposed research is to design and conduct field sampling experiments to monitor the concentration of sediment, turbidity and other associated pollutant in stormwater runoff at selected WisDOT construction sites representing different stormwater runoff characteristics, e.g., urban vs. rural. The research will also evaluate the effectiveness of various best management practices that control erosion and sediment discharge based on quantitative measures, i.e., the turbidity level. Data collected and analyzed will be applied to establish appropriate stormwater runoff monitoring protocols for WisDOT construction projects that can comply with the recently established Effluent Limitation Guidelines (ELGs) by EPA. We will also communicate the research results with WisDOT for future implementation. Specifically, the proposed study will address the following objectives.

- We will review the technical details of the EPA ELGs, design sample collection and measurement procedures.
- We will identify on-going WisDOT construction sites for monitoring implementations, Site selected shall be representative of various soil type, disturbed area, hydrological conditions, and erosion control BMPs.
- For each selected site, we will determine sampling frequencies based on the magnitude (return period) and duration of precipitation events. We will select sampling locations where water enters the construction site, at pre-treatment, at post-treatment and leaving the construction site (discharging points).
- Based on sampling results, we will determine the range of the effectiveness of different erosion control devices (BMP's) in minimizing the TSS and turbidity level.
- We will also monitor the change of turbidity level of the nearby receiving water bodies, including streams and rivers or stormwater drainage systems, on both the upstream and downstream side of the construction site.

Progress This Quarter (includes meetings, work plan status, contract status, significant progress, etc.)

Following discussions in the meeting with POC on Nov 14, 2014, we have fabricated 6 replicates of the automated stormwater sampling sensor systems for the Spring melting events and the following summer storm events. The sensors were calibrated with standard solutions.

We contacted several local DOT offices for construction projects and identified the following candidate sites: (1) Highway 441 at Appleton (2) STH 67 and I94 at Oconomowoc (3) US 50 and US 12 in the Walworth county. We have made on site survey on site (3) and identified several sampling locations.

Anticipated Work Next Quarter

We will visit site (1) and (2) and conduct field surveys. We will also identify 3 more sites including those represent the sandy central plain area, and the northern highlands.

Circumstances Affecting Project or Budget

N/A

Attach / Insert Gantt Chart and Other Project Documentation

Task	2012	2013				2014				2015			
	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Literature Review													
2. Work plan development													
3. Work plan execution and data collection/analysis													
4. Final Report													

(*enter text)

For WisDOT Use Only	
Staff Receiving QPR J. Walejko	Date Received (m/d/yyyy) 2/2/2015
Staff Approving QPR Jeff Horsfall	Date Approved (m/d/yyyy) 2/3/2015